

Amendments to the Claims

Please replace the Claims as shown below:

1. (currently amended) A polaroid encoder system for detecting movement, said system comprising:

a movable polarizing code element comprising a code;

a detector module to detect an amplitude based on how much illumination passes through a first portion of said movable polarizing code element, said detector module comprising:

a first ~~light detector~~ illumination detector covered with a first static polarizing filter that is oriented in a first direction;

a second ~~light detector~~ illumination detector covered with a second static polarizing filter that is oriented in a second direction;

a first determination module to identify a quadrant of said movable polarizing code element based on how much illumination passes through a second portion of said movable polarizing code element, said first determination module comprising an illumination detector located on the same side of said movable polarizing code element as said first and second illumination detectors of said detector module; and

a second determination module coupled to receive said amplitude and said quadrant and to determine an angular position of said movable polarizing code element using said amplitude and said quadrant.

2. (currently amended) The system of Claim 1, further comprising:

a controller module coupled to receive said angular position of said movable polarizing code element, wherein said controller module uses said angular position to control a movable device coupled with said movable polarizing code element.

3. (currently amended) The system of Claim 2, wherein said controller module ~~uses said angular position to control a device coupled with said movable polarizing code element~~ is selected from the group consisting of a neural network controller, a fuzzy logic controller, a proportional integral derivations controller, and a motor controller.

4. (previously presented) The system of Claim 1, wherein said second direction is substantially perpendicular to said first direction.

5. (currently amended) The system of Claim 4, wherein said first ~~light detector~~ illumination detector and said second ~~light detector~~ illumination detector each comprises a photodiode.

6. (currently amended) The system of Claim 1, wherein said ~~movable polarizing code element comprises a code~~ is substantially opaque.

7. (original) The system of Claim 6, wherein said code is located within a segment of said second portion of said movable polarizing code element.

8. (currently amended) The system of Claim 1, wherein said ~~detector module to also detect how much illumination passes through said second portion of first~~ determination module further comprises a second illumination detector located on the same side of said movable polarizing code element as said first and second illumination detectors of said detector module.

9. (currently amended) A method for determining angular position of a movable polarizing code element, said method comprising:

illuminating said movable polarizing code element comprising a code;

detecting a first amplitude based on how much illumination passes through a first portion of said movable polarizing code element and a first static polarizing filter oriented in a first direction, said detecting said first amplitude comprises utilizing a first photodiode;

detecting a second amplitude based on how much illumination passes ~~through a~~ through said first portion of said movable polarizing code element and a second static polarizing filter oriented in a second direction, said detecting said second amplitude comprises utilizing a second photodiode;

determining a quadrant of said movable polarizing code element based on how much illumination passes through a second portion of said movable polarizing code element, said determining said quadrant comprises utilizing a third photodiode, wherein

said first, second, and third photodiodes are located on one side of said movable polarizing code element; and

determining said angular position of said movable polarizing code element using said first amplitude, second amplitude and said quadrant.

10. (currently amended) The method as described in Claim 9, further comprising:

utilizing said angular position to control a device movable apparatus coupled with said movable polarizing code element.

11. (currently amended) The method as described in Claim 9, wherein said ~~movable polarizing code element comprises a~~ code is substantially opaque code.

12. (original) The method as described in Claim 11, wherein said determining said quadrant comprises utilizing said substantially opaque code.

13. (currently amended) The method as described in Claim 12, wherein said ~~detecting said amplitude comprises utilizing a static polarizing filter~~ determining said quadrant further comprises utilizing a fourth photodiode.

14. (previously presented) The method as described in Claim 9, wherein said first direction is substantially perpendicular to said second direction.

15. (currently amended) The method as described in ~~Claim 9~~ Claim 10, wherein said ~~detecting said first amplitude further comprises utilizing a first photodiode covered by said first static polarizing filter, wherein said detecting said second amplitude further comprises utilizing a second photodiode covered by said second static polarizing filter~~ utilizing said angular position to control said movable apparatus is performed by a controller module.

16. (currently amended) The method as described in Claim 9, further comprising:

~~detecting how much illumination passes through said second portion of said movable polarizing code element~~ wherein said controller module is selected from the

group consisting of a neural network controller, a fuzzy logic controller, a proportional integral derivations controller, and a motor controller.

17. (currently amended) A system for determining an angular position of a movable polarizing code element, said system comprising:

means for illuminating said movable polarizing code element comprising a code;

means for detecting a first amplitude based on how much illumination passes through a first portion of said movable polarizing code element and a first static polarizing filter oriented in a first direction;

means for detecting a second amplitude based on how much illumination passes through a ~~first~~ said first portion of said movable polarizing code element and a second static polarizing filter oriented in a second direction;

means for identifying a quadrant of said movable polarizing code element based on how much illumination passes through a second portion of said movable polarizing code element, said means for identifying said quadrant comprises an illumination detector, wherein said illumination detector, said means for detecting said first amplitude, and said means for detecting said second amplitude are located on one side of said movable polarizing code element; and

means for determining said angular position of said movable polarizing code element using said first amplitude, second amplitude and said quadrant.

18. (original) The system of Claim 17, further comprising:

means for utilizing said angular position to move an apparatus coupled with said movable polarizing code element.

19. (currently amended) The system of Claim 17, wherein said ~~movable polarizing code element comprises a~~ code is substantially opaque ~~code~~.

20. (currently amended) The system of Claim 19, wherein said substantially opaque code substantially obscures illumination from being received by said illumination detector of said means for identifying said quadrant.

21. (previously presented) The system of Claim 17, wherein said first direction is substantially perpendicular to said second direction.

22. (currently amended) The system of Claim 17, wherein said means for detecting said first amplitude comprises a photodiode ~~covered by a~~ covered by said first static polarizing filter.